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EDITORIAL AND PUBLICATION OFFICE
WINTHROP, IOWA



PLATE 1. Pheasant casualties resulting from the blizzard in the Estherville region. A. Dead hen in the shelter of standing corn; B. Hen, victim of the storm, in oat stubble; C. Cock hanging in fence where it apparently struck during the storm (note spread mesh evidencing the force of the impact).

SOME EFFECTS OF THE 1940 ARMISTICE DAY STORM ON IOWA'S WILDLIFE¹

By THOMAS G. SCOTT and THOMAS S. BASKETT

Among the most destructive blizzards within historic time was one that struck the north-central states on November 11, 1940. In Iowa the principal damage was suffered in the northwestern part of the state, where considerable destruction of livestock, fruit trees, and wildlife was reported. Preceded by mild and open weather, the storm was ushered in by intermittent heavy rainfall, changing to snow with high wind and falling temperature (as much as 30 degrees in 2 hours). Surprisingly, the minimum temperature ranged no lower than 6° to 11° F.; lower temperatures were experienced on November 12, 13 and 14 but with little wind. The wind attained a maximum velocity of 35 to 40 miles per hour throughout the storm area, and in some places gusts were known to have attained velocities of 50 miles per hour.

The killing of Ring-necked Pheasants (*Phasianus colchicus torquatus*) aroused great interest, particularly because the storm occurred on the day before the opening of the hunting season on this bird. Estimates of pheasant mortality ranging from 50 to 90 per cent of the population were reported from some northern and western counties.

During November and for a period of two weeks thereafter both writers were in the field in various localities inspecting the damage done to wildlife. The findings are presented by locality.

WINNEBAGO RESEARCH AREA

Heavy intermittent rain fell on the research area in Winnebago County during the afternoon and night of November 10, and the rain changed to snow at about 9:00 a.m., November 11. The temperature then fell rapidly and the snowfall and wind velocity increased until a peak of fury was reached at mid-afternoon. The snowfall at Forest City, Iowa, about 15 miles to the south, totaled four inches.² The first snow was loose and moist and with the lowered temperature it froze an effective snowy canopy over the denser ground cover. The fine, dry snow accompanied by high winds drifted over this canopy and resulted in a much more thorough covering of ground vegetation than would normally accompany a heavier precipitation (Plate III, fig. B). Although there was some movement, the pheasants seemed to make little attempt to concentrate in the winter coverts on the area.

On November 12, all pheasants seen showed evidence of their ordeal. Many had encasements of ice over their eyes, and nearly all were so weighted with snow and ice that they flew only with difficulty. On November 13, several dead birds were found, but most of the live ones flew and behaved "normally". Thirty-seven males bagged in hunting were examined, but none had ice in its plumage. Crows (*Corvus brachyrhynchos*) found and picked at the dead pheasants, scattering feathers and rendering the carcasses easily visible. But few birds were concealed entirely under the snow, for searches after the snow had melted revealed no birds whose whereabouts were not already known.

On the average, 12-16 storm-killed pheasants were found to a section (640 acres). This loss amounted to less than 10 per cent of the

¹Journal paper No. J-859 of the Iowa Agricultural Experiment Station, Ames, Iowa. Project Nos. 497 and 598. The Fish and Wildlife Service (U. S. Dept. of the Interior), Iowa State College, Iowa State Conservation Commission and the American Wildlife Institute co-operating.

²All quantitative weather data were taken from the Monthly Report for November, U. S. Dept. of Commerce, Weather Bureau, Iowa Section.

population, for flushing counts made after the storm indicated a population of 180-200 pheasants per section.

After November 11, many flights of ducks were observed passing through the Winnebago Area, but no mortality among these birds was observed.

ESTHERVILLE REGION

At Estherville, snow started falling during the early morning hours of November 11. The total fall amounted to 12 inches, the heaviest on record in November for that community.

On November 16, both writers, in the company of the local State Conservation Officer, E. Wogen, checked the region for dead pheasants. In approximately 20 miles of driving, nine dead pheasants and 40 live birds were observed. Other parties had collected frozen pheasants under the supervision of Wogen, and it was thought that none had followed the route taken on the sixteenth. In one 40-acre stubble field, 15 dead birds were found, and of these, six were located in a five- or six-acre slough with sparse cover, which had completely drifted (Plate III, fig. A). One pheasant had tunneled from a ground roost, ice-lined when observed, through a snow drift about three feet deep and had escaped through a crust that was strong enough to support a man's weight. The bird had not left the opening long before, as attested by its tracks in the fine snow over the crust; direct observation of a similar case was related by Scott (1937). A live female was found partly buried in snow and ice which had frozen to the feet and to the feathers of the tail, back, and crown. The bird had certainly been held captive in this icy prison from early Monday to Saturday, a period of five days. When liberated, after the snow and ice had been removed, the bird made a fairly strong flight of several hundred feet. A cock pheasant was found hanging frozen to a wire fence which it had probably struck while in flight during the storm (Plate I, fig. C).

Other animals found dead as a result of the storm near Estherville included Red-wings (*Agelaius phoeniceus*), domestic pigeons (*Columba livia*), a Tree Sparrow (*Spizella arborea*), American Coots (*Falca americana*), cottontails (*Sylvilagus floridanus meadensi*) and a white-footed mouse (*Peromyscus maniculatus baileyi*). Two Coots were found frozen in the ice on Twelve-Mile Lake, south of Estherville. One of these was alive although it had doubtless been imprisoned since early on November 12 when the lake froze over. The bird was breast-deep in ice; body heat had kept the main plumage free. The primaries, however, were securely caught in the ice, and one wing was broken, possibly from an earlier injury. The bird was strong enough to fight back vigorously.

BIG WALL LAKE REGION

The snowfall at Big Wall Lake, Wright County, was light as compared with that at Estherville and Forest City. The weather observer at Webster City, the station nearest the lake, reported a fall of 1.2 inches.

Observations were made in this region on November 13, 15, and 26. No evidence was found of pheasant mortality within the marsh vegetation, despite a very dense population; however, at three places within the marsh, Red-wings were killed by the storm. In open fields and along a clean fence row near the lake, three pheasants, seven Red-wings, two cottontails, and a Meadowlark (*Sturnella sp.*) were found dead, surely victims of the storm.

CENTRAL IOWA REGION

Observations were made in central Iowa at Ames, Boone and Goose Lake near Jewell. Snow appeared in the region of Ames at about 7:00 a.m., November 11. The snowfall reported at Ames was 2.0 inches; at Boone, 15 miles west of Ames, 1.5 inches were recorded.



PLATE II. A. Cock pheasant found dead in stubble field in the Estherville region after the storm; B. Hen pheasant, victim of the storm, scavenged upon by crows; C. Cock pheasant with ice-clogged bill and nostrils from the Estherville region.

Heavy flights of ducks, mostly Mallards, (*Anas platyrhynchos platyrhynchos*) but with a few Pintails (*Dafila acuta tzitsihoo*) and Baldpates (*Chauleasmus streperus*) were noted on November 11 near Ames. They flew low and held close to open streams, escaping southward from the storm area. No wildlife mortality was seen in the Ames locality.

At Boone, the only evidence of storm killing was the finding of a few dead Slate-colored Juncos (*Junco hyemalis hyemalis*).

At Goose Lake, near Jewell, pheasants had been observed in daytime roosts of reed (*Phragmites maximus*) previous to November 11. At noon on November 12, less than half the birds were in this cover. The others seemed to have remained in separate roosting places in the shorter cover afforded by a *Scirpus-Typha* community. Here they were flushed one or two at a time, and then only when nearly trampled. Since the birds had not previously left these roosts, they were forced to break through a snow canopy. Many had chunks of ice and snow clinging to their tails. One female was caught by hand, for the ice frozen to her tail did not break from the vegetation when the bird attempted to fly. No pheasants were known to have died as a result of the storm in the Goose Lake region.

On November 11, there were a large raft of Scaups (*Nyroca* sp.) and mixed flocks of Coots, Mallards, Pintails, and Baldpates on the Lake, but by noon of the 12th, all these had gone. A dead female Mallard, probably a cripple, was found frozen solidly in about three inches of ice on one of the small open water areas in the marsh.

DISCUSSION

The literature contains a number of references to wildlife mortality resulting from protracted severe winter weather. Green (1938) reported serious damage to pheasants in northern Iowa during a series of storms and a period of extremely cold weather lasting more than a month. Beed (1938) estimated an 80 per cent loss of the pheasant population of the Waubay National Migratory Waterfowl Refuge in South Dakota from starvation and exposure through the period of December, 1936, to March, 1937. Trautman, Bills, and Wickliff (1939) reported on game bird losses because of unseasonable weather in March, 1932, in Ohio; including a brief interruption, this unfavorable weather was of 18 days' duration.

The Armistice Day situation here reported was worthy of attention particularly because wildlife mortality was caused by a storm which struck with suddenness, lasted but one day, and had been preceded only by favorable and moderate weather. The cause of winter-killing is generally due to subtle combinations of environmental security, physical condition of those species concerned, and weather; any one of which is capable of extremes in variation and of considerable difficulty in evaluation. There was no evidence of disease or excessive parasitic infestations among the pheasants on the Winnebago Area during the autumn, nor did those dead birds recovered after the storm in any locality appear to have been in poor condition. It should be emphasized that starvation could scarcely have taken effect, for the storm occurred at a time when food was available in abundance. The many unpicked cornfields were so drifted that pheasants could reach many of the ears, and machine-picked fields had drifted bare in many spots, exposing waste grain. Errington (1939) showed experimentally that lowered resistance to cold brought about by starvation resulted in little mortality to pheasants until the weight had been reduced to 50 to 60 per cent of normal. Obviously, pheasants could not lose 40 per cent of their weight in one foodless day.

Dead pheasants with the beak open and full of icy snow (Plate II, fig. C), as described by Green (1938), were also found on this study particularly in the Estherville region, where most of the birds had apparently died during the storm. Pheasant mortality on the Winne-



PLATE III. A. Men standing beside pheasants as found on drifted snow in clough near Estherville; B. Cane food patch on the Winnebago Research Area after the Armistice Day storm; C. Same food patch in October prior to the storm.

bago Area, on the other hand, seemed to have been delayed and gradual, for no dead birds were found in this locality until November 13.

There was no evidence that predation accounted for actual death of any pheasants examined, but the dead birds constituted an important food-windfall for various flesh eaters. On the Winnebago Area, where Crows were common, nearly all the frozen pheasants were picked at, and most of the flesh was gone from some (Plate II, fig. B). One frozen pheasant hen near Estherville had been partly consumed by an owl. Red foxes (*Vulpes vulpes*) were known to have scavenged upon carcasses of Slate-colored Juncos, Red-wings and Pheasants. Evidence of mink (*Mustela vison*) feeding on Red-wings was also observed in the field. In all cases, the field "signs" indicated that the birds had succumbed to the storm before being fed upon.

It is admittedly hard to determine the relative importance of the factors involved in causing storm losses to wildlife because of the difficulties involved in obtaining detailed meteorological measurements. Nevertheless in this instance it seems worthwhile to attempt an evaluation of the factors, particularly as regards pheasant losses. First of all, the moderate and unusually mild weather preceding the storm had not stimulated physical preparedness nor concentrated the birds in the winter coverts. Thus, the birds, exposed and physically unprepared, were subjected to the sudden impact of a severe mid-winter blizzard. It was seen that the degree of mortality varied with some regularity throughout the portion of the storm area studied. Beginning with the place of greatest loss the localities inspected may be put in the following order: Estherville region, Winnebago Research Area, Big Wall Lake region, and the central Iowa region. Minimum temperature readings did not differ greatly throughout the section during the storm. The degree of mortality seemed to exhibit a correlation with amount of snowfall as may be observed in the following: Estherville region, 12 inches; Winnebago Research Area, 4 inches; Big Wall Lake region, 1.2 inches; Ames, 2 inches; and Boone, 1.5 inches. Although the snow was no doubt of importance, particularly as regards filling of coverts, clogging of nostrils and mouth, and blinding, it is thought that its effect was secondary to that of wind velocity. Although the wind velocity readings at hand are not extensive enough or of sufficient detail to support definite conclusions, it is strongly felt that wind velocity was of primary importance in this instance.

SUMMARY

1. The storm of November 11 took a toll of wildlife in northwestern Iowa. On the Winnebago Area in north-central Iowa, the losses constituted less than 10 per cent of the pheasant population, but near Estherville, where the impact of the storm was more severe, losses were higher.

2. It appeared that the mortality of pheasants resulted from the sudden exposure of birds unaccustomed to a weather condition of mid-winter severity, and that the amount of mortality seemed closely related to the depth of snowfall and high wind velocity of which the latter was felt to have been of most consequence.

3. Species other than pheasants which were found killed by the storm of November 11 were: Red-wings, Meadowlarks, Slate-colored Juncos, Tree Sparrows, Coots, domestic pigeons, cottontails, and a white-footed mouse.

4. Birds and mammals killed by the storm constituted an important food-windfall to certain meat-eating species, a matter of considerable importance to the food habits investigator.

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FISHING WITH A SHOTGUN

By T. C. STEPHENS

SIoux CITY, IOWA

The following story was related to me by Mr. Axel J. Anderson, for many years the leading taxidermist of Sioux City. Mr. Anderson was born in Sweden in 1869, and came to the United States in 1879, two weeks before Christmas Day. He went directly to Alta, Iowa, but moved with his parents to Des Moines in April, 1882. In September of 1885 he came to Sioux City, where he remained until his death, on November 4, 1923. Through his kindness many valuable records have been added to the avifauna of this part of the country.

During the years of Axel's residence in Des Moines he frequently accompanied his mother to a point along the river a few miles from the city, where they fished. Anderson described this part of the river as a straight stretch which was very clear and shallow, and with a sandy bottom. Red-horse and buffalo occurred here in large numbers. On the shore at about the middle of this stretch there was a very large dead tree, to which the Ospreys habitually flew after capturing their fish. The trunk of the tree was hollow and open at the bottom.

Mr. Anderson built a blind about ten feet from the base of this tree. Once or twice a week he loaded several shells with a heavy charge of powder, but no shot, and, not forgetting the coffee pot, went with his mother to the Osprey tree and waited. The shotgun was strapped securely to two sapling prongs, and pointed to the opening in the hollow tree-trunk. As soon as the Osprey arrived with his fish the gun was discharged, and the report was received in the hollow trunk. The hollow trunk served as a resonator, probably multiplying the sound many times. Possibly, even, to some extent the sound waves were transmitted to the tree-trunk and its branches.

Considerable practice and skill were required to make the shot at just the right time to secure the fish before it had been damaged; and not too soon to frighten away the bird with the fish. In most cases the fishes were dropped. Not more than four or five times in all his experience did the bird fly away carrying its quarry. By this method they usually secured from three to five good, large-sized fishes on each of the half-day watches.

Mr. Anderson was never certain whether the same Osprey came back more than once during the day; but he saw as many as eight birds at one time. So it was probable that the big tree served as a sort of rendezvous for all the Ospreys. It often happened, too, that four or five Crows seemed to be on the watch, and would take after an Osprey and try to annoy it into dropping the fish before the tree was reached.

I am not certain but that I may have read something of this kind in the literature, or the impression may simply be due to familiarity with this story. However, it is certain that Mr. Anderson had these experiences, and that they were novel to him. I tell the story here, not from memory, but from notes made years ago, as Mr. Anderson told it to me.

A PLEA FOR THE WOOD DUCK

By B. O. WOLDEN
ESTHERVILLE, IOWA

At the Spirit Lake convention of the Iowa Ornithologists' Union in 1939 there was some discussion pertaining to a proposed open season on the Wood Duck. The view was expressed that when Wood Ducks had increased so that there would be "a shootable surplus" there was no reason why an open season should not be declared on them. This may be logical reasoning for those who assume that all game birds are the sole property of those who hunt and kill, and not of the people at large. The sportsman is interested in wildlife protection in order that there may always be something for him to kill. But there are those who look at this matter of wildlife protection from a different angle. They are interested in the preservation of the Wood Duck for the same reason that they are interested in the preservation of our song birds, our beautiful non-game birds like the egret, our wild flowers, our natural woodlands, our lakes and beauty spots. Their reason is not that there may be something to kill but that natural beauty be preserved, not for a few, but for all to enjoy.

Why should one of the most beautiful birds of North America be considered to be the sole property of sportsmen, except for the one stipulation that they see to it that it does not become totally extinct? We are trying to preserve the natural beauties of our lakes, to restore beauty to our polluted streams, to save our woodlands with their wild flowers, and to attract birds to our homes. We do this because we love natural beauty. We are thrilled at the sight of an egret, a swan, or a pelican, not because they furnish sport but because we enjoy seeing such beautiful specimens of wild life about us. Let us restore the Wood Duck to our lakes and streams, giving it a permanent place among these and other non-game birds to be a part of that remnant of native beauty which we are desperately trying to preserve about us. Their beauty and charm should make them as precious to us as are the birds about our homes, the wild flowers in our woodlands, and the water lilies in some of our lakes.

There is another reason why these birds should not be classed with other game birds most of which are fairly able to take care of themselves if given half a chance. As a youth I stood on the lake bank and watched Wood Ducks sporting at the water's edge, a few feet away. Once I did this right after the close of the hunting season in the spring. There had been heavy shooting a few days before, yet these ducks seemed to know no fear. The gorgeous males and coy females were sporting and playing only a few feet from where I stood in full view watching them. This explains why they became almost extinct. A bird as tame and trusting should not be classed as a game bird no matter how good its flesh may taste and certainly not as long as we have an over-supply of food. No one with a spark of love of nature and beauty in his soul could see these lovely birds along a lake or stream and wish to start pouring lead into their helpless bodies. Instead of killing all but enough for seed, let us bring back these beautiful, tame and trusting birds in such numbers that they may lend beauty, grace and enchantment to all our waters and for all to enjoy.

GADWALL AND FRANKLIN'S GULL NESTING
IN IOWA¹

By JESSOP B. LOW

Keyes and Williams (Proc. Davenport Acad. Sci., Vol. V, 1889, p. 116) write of the Gadwall (*Chaulelasmus streperus*): "Doubtless breeds in northern Iowa, inasmuch as the young have been taken at 'the Lakes' in August." Anderson (Proc. Davenport Acad. Sci., Vol. XI, 1907, p. 168) quotes W. H. Bingaman: "I secured a set of ten eggs of the Gadwall at Anderson's Slough, five miles northwest of Algona, on May 29, 1901. Have found the young almost every year since at that place. It is also reported breeding at Union Slough in this county" (Kossuth County). DuMont (Univ. Iowa Studies Nat. Hist., Vol. XV, No. 5, 1933, p. 34) writes: "There are no recent nesting records." It was not reported as a breeding duck by Bennett (The Blue-winged Teal, Collegiate Press, Inc., 1938) following an intensive investigation of the Blue-winged Teal (*Querquedula discors*) in northwest Iowa during the drouth and semi-drouth period of 1932 to 1937.

Gadwalls migrated through Clay and Palo Alto Counties, Iowa, during the spring seasons of 1938, 1939 and 1940 in large numbers. Pairs of Gadwall were observed in these counties as late as June 21, 1938, and individuals were seen throughout the entire nesting and rearing seasons of 1939 and 1940.

On August 12, 1938, while the writer and Thomas G. Scott of the U. S. Fish and Wildlife Service were making early morning observations on duck broods in the southwest end of Greene's Slough in Clay County, a female Gadwall was observed circling and calling in the manner of a nesting duck. A thorough search made at that time failed to reveal either a nest or a brood of ducklings, although the female appeared again the following morning over the same wild hay field, circling and calling as on the previous day.

On July 7, 1939, a week-old brood of five Gadwalls accompanied by the female were observed in a large pothole in the eastern part of Dewey's Pasture, a state-owned tract of undrained prairie established as a game preserve. Typical of the larger potholes in this pasture area the vegetation consisted of a sedge (*Carex* spn.) border, a zone of cat-tail (*Typha latifolia*) and hardstem bulrush (*Scirpus acutus*) and a partially open stand of giant bur-reed (*Sparganium eurycarpum*) in the center. Upon seeing the observer the female quickly led the ducklings into the dense bulrush and cat-tail after which she reappeared and attempted to divert attention from the brood to herself. As late as June 15, 1940, an estimated 20 pairs were still in the vicinity of Lost Island Lake, and although paired ducks were observed flying over hay fields and pastures adjoining the larger sloughs during the normal nesting period, no nests were found during the season.

Keyes and Williams (Proc. Davenport Acad. Sci., Vol. V, 1889, p. 115) report the Franklin's Gull as, "Migratory; rather common. Doubtless breeds within the limits of the State." Anderson (Proc. Davenport Acad. Sci., Vol. XI, 1907, p. 155) writes that the Franklin's Gull "... appears to be a frequent migrant in Iowa, according to nearly all observers, but it is doubtful whether it breeds in Iowa at the present time. Col. N. S. Goss (Bds. of Kan., 26) states: 'They have been found breeding as far south as northern Iowa . . . one set of three eggs taken May 20, 1885, by Mr. J. W. Preston, on March Lake, Minn.' " In 'A Revised List of Birds of Iowa' DuMont (Univ. Iowa

¹Journal Paper No. J-845 of the Iowa Agricultural Experiment Station, Ames, Iowa. Project 496. Fish and Wildlife Service (U. S. Department of the Interior), Iowa State College, Iowa State Conservation Commission and the American Wildlife Institute cooperating. Work on this project is under the supervision of Dr. Geo. O. Hendrickson, Iowa State College, and Thos. G. Scott, U. S. Fish and Wildlife Service.

Studies Nat. Hist., Vol. XV, No. 5, 1933, p. 76) states that, "... evidence of its breeding in Iowa is lacking", although in 1934 (The Oologist, Vol. LI, No. 5, 1934, p. 55) he placed the bird in the list of 'The Breeding Birds of Iowa' as one which might be expected to be found nesting in Iowa. Bennett (The Blue-winged Teal, Collegiate Press, Inc., 1938) does not record the Franklin's Gull as a nesting bird in northwest Iowa during the period 1932 to 1937.

During the course of diving duck investigations, 1938-1940, in Clay and Palo Alto Counties, Iowa, incidental notes were taken on other water birds nesting in habitat similar to the Redhead (*Nyroca americana*). Franklin's Gull numbering approximately 800 individuals were sighted on June 1, 1940, in Barringer's Slough, a 1200-acre tract of very good duck nesting habitat located in Lake Township, Clay County. Assuming the birds to be summer residents, little attention was first accorded them. However, on June 6, while looking for Redhead nests near the south-central part of the slough, three nests of the Franklin's Gull were found. In characteristic fashion the gulls came screaming and diving as their nests were approached. The three nests were within 3 yards of one another and within 30 yards of four Forster's Tern (*Sterna forsteri*) nests.

The roughly cone-shaped nests, each containing three eggs, were located in about two acres of mixed broad-leaved cat-tail and sedge (*Carex substricta*). The sedge constituted the principal building material of the nests of the gulls and the terns. Water surrounding the nests measured 6 inches deep, although a few yards to the north, south and west of the nests the water deepened to about 24 inches. In a community of reed (*Phragmites maximus* var. *Berlandieri*), 100 yards north and separated from the gull nests by an open water channel 25 to 35 yards wide, a colony of Black-crowned Night Herons (*Nycticorax nycticorax howelli*) nested. About June 20 all but 8 of the gulls left the slough. One gull nest was observed with newly-hatched young. Although the fate of the juveniles was not ascertained, the adult gulls remained in the vicinity of this slough until August 5, the last date on which they were observed.

A REPORT ON THE ANNUAL CONVENTION

By WALTER M. ROSENE

Sec'y-Treas., Iowa Ornithologists' Union

The nineteenth annual meeting of the Iowa Ornithologists' Union was held at Atlantic, Iowa, on Saturday and Sunday, May 10 and 11, 1941. The Saturday morning and afternoon sessions were held in the high school auditorium, with the following program:

Morning Session

8:30. Registration.

Address of welcome, by Ivan Boyd. The Response was made by Dr. Warren Keck, President of Iowa Ornithologists' Union.

"Duck Studies." Jessop B. Low, Iowa State College, Ames.

"Hawks and Owls." Stephen J. Field, Council Bluffs.

"Bird-banding in Iowa." Malcolm McDonald, Parsons College, Fairfield.

"The Blue Goose as a Migrant Through Western Iowa." Bruce F. Stiles, Council Bluffs.

"The Mourning Dove in Iowa." Elliott McClure, Lincoln, Nebraska.

"Iowa's Bob-whites." Dr. G. O. Hendrickson, Iowa State College, Ames.

"Natural and Experimental Color Patterns." C. G. Danforth, University of Iowa, Iowa City.

Before noon adjournment the President announced his appointment of the following committees: Nominating, Dr. G. O. Hendrickson

(Chairman), Malcolm McDonald, Dr. Mary Roberts; Resolutions, Dr. M. L. Grant (Chairman), Mrs. Mary L. Bailey, Mrs. Myrle Jones; Auditing, Judge O. S. Thomas (Chairman), Lucile Loban, Ethan A. Hemsley.

Afternoon Session

"The Flight of Birds." E. P. Heuser, Dubuque. (In the absence of the author this paper was read by Miss Mary Young, of Dubuque.)

"Relationship between Birds and Fish." W. W. Aitken, State Biologist, Des Moines.

"Queer Birds from Odd Places." Dr. M. L. Grant, Iowa State Teachers College, Cedar Falls. (Illustrated by a collection of pictures.)

"Late Fall and Winter Bird Records for Sioux City." Jean Laffoon, Sioux City.

"Haunts for the Hunted." W. F. Kubichek, Fish & Wildlife Service, Washington, D. C. (Illustrated by colored motion pictures.)

Since the afternoon hour had become late, the Forum topic, "The Status of the English Sparrow", which was scheduled for three o'clock, was omitted at the suggestion of Dr. Roberts, who was to have led the discussion. The program was thus ended, and it was followed immediately by the business session.

First in the order of the business meeting was the reading of the annual report of W. M. Rosene, Secretary-Treasurer. This was followed by a report of the Auditing Committee who had examined the Treasurer's books and vouchers and had found them to be correct and in order. The recommendations of the Nominating Committee were next heard. A motion was made by Judge Thomas and seconded by Mr. Johnson that the Secretary be instructed to cast a unanimous vote for all officers nominated (these new officers are listed on the title page of this issue). The question of the use of bird feathers for millinery purposes was the next subject brought up. The discussion was led by Dr. Mary Roberts, of Spirit Lake. No definite action was taken. A motion was made by Dr. F. L. R. Roberts that the Chairman appoint a committee to formulate and revise our by-laws, and to draw up a set of aims and objectives, the same to be presented at the next annual meeting. Chairman Keck appointed these persons to serve on this committee: Judge O. S. Thomas (Chairman), W. M. Rosene, Dr. F. L. R. Roberts. There was a discussion of the matter of dues, after which Dr. Grant made a motion, seconded by Mr. Johnson, that membership dues be uniformly maintained at one dollar per annum regardless of whether or not members or subscribers reside within or outside the state of Iowa. This motion carried. A motion was made by Dr. Mary Roberts, and seconded by Mr. Johnson, that instead of 50c of each membership fee being used for 'Iowa Bird Life', the amount should be increased to not more than 75c for the publication of the magazine. The motion carried. At this point the afternoon session was adjourned.

The Ornithologists' Banquet was held at 6:30 Saturday evening at the Congregational Church, with Frank Pellett as toastmaster. Mr. Pellett introduced various guests to the assembled group. Several musical numbers were enjoyed. There was a solo, "Comin' through the Rye", by Sara Noblitt, and "The Blue Swan" and "Will-o'-the-Wisp" were sung by a trio, Joan Voss, Sara Noblitt and Marilyn Simpson, with Harriett Cook as accompanist. After the banquet program the guests went to the main auditorium of the church to listen to an illustrated lecture entitled "Nature through the Eyes of the Color Camera" by Walter M. Rosene. He showed three reels of 16 mm. Kodachrome film of birds, flowers and other nature subjects. There were approximately 90 people at the banquet and about 125 heard Rosene's lecture after the banquet.

The field trips, in which a large group took part, began at 5:30 on Sunday morning. Finally all returned to the park where "brunch"

was served and the total list of birds was compiled. The report of the Resolutions Committee was read by Dr. Grant at this time. After bidding one another good-bye the group gradually broke up and the members started for their homes in various parts of the state. One more pleasant Iowa Ornithologists' Union convention was but a fond memory.

Resolutions.—BE IT RESOLVED by the Iowa Ornithologists' Union, in annual convention assembled at Atlantic, Iowa, May 11, 1941, that we hereby express our thanks to the Atlantic Bird Club for the invitation to meet with them and the many kindnesses which have made our stay so enjoyable. May we especially commend the local committee for their generous hospitality, and their efficient handling of the physical arrangements and of the social and business aspects of the convention.

Be it further resolved that we express our appreciation to the officers of the Iowa Ornithologists' Union for their efficient work during the past year, to Mr. Pierce for his capable handling of the editorship of 'Iowa Bird Life', and to President Keck and the Cedar Rapids Bird Club for the preparation and publication of the syllabus on the organization of bird clubs.

Be it also resolved that all possible attention be paid by the members in regard to the prevention, by a campaign of education as well as legal procedure, of the importation, sale, and use of the feathers of desirable species of wild birds for millinery purposes.

Be it finally resolved that the members continue their efforts to the fullest extent in promoting the scientific and social aspects of conservation.

(Signed) The Resolutions Committee:

Martin L. Grant
Mrs. Mary L. Bailey
Mrs. M. L. Jones

Attendance Register.—AMES, Ivan L. Boyd, Dr. and Mrs. G. O. Hendrickson, Jessop B. Low; ATLANTIC, Grace Barnard, Mr. Bast, Alma M. Beckwith, Mrs. D. C. Bice, Betty Bice, Don Bice, Mr. and Mrs. H. M. Boorman, Harlow Butcher, Mr. and Mrs. H. E. Codlin, Gertrude Ellick, Mr. and Mrs. A. A. Emigh, Mrs. Perry Howard, Eva Johnson, Mr. and Mrs. Glenn O. Jones, Glenn Jones, Jr., Marjorie Jones, Bertha Kjar, Gladys Kleuver, Mrs. F. G. Mallette, Bob Mallette, Sara Noblitt, Ralph Noyce, Mr. and Mrs. Frank Pellett, Eugene Ruhr, Joan Ruhr, Mr. and Mrs. Charles Ruhr, Blendina Salisbury, Mr. and Mrs. Harry Sherwood, Marilyn Simpson, Billy Tompkin, Mrs. F. T. Tucker, Joan Voss, Mrs. H. P. Ziegler; AVOCA, Earl Sanders; CEDAR FALLS, Dr. and Mrs. Martin L. Grant; CEDAR RAPIDS, Esther Copp, Lavina Dragoo, Dr. Warren N. Keck, A. W. Meyer, Lillian Serbousek, Dr. Robt. Vane; CLARINDA, Mr. and Mrs. C. E. Hoskinson, Helen Hoskinson, Mrs. Curtis Masteller; COUNCIL BLUFFS, Ben Bieres, Stephen J. Field, Bruce F. Stiles; DAVENPORT, Ralph Heuer; DES MOINES, W. W. Aitken; DUBUQUE, Ethan Hemsley, Mr. and Mrs. R. W. Johnson, Margaret Kohlman, Ival M. Schuster, Mary H. Young; EXIRA, E. C. Wilson; FAIRFIELD, John Goodman, Malcolm McDonald; HAMPTON, Mr. and Mrs. Howard Lambert; IOWA CITY, Chas. G. Danforth; LAMONI, Mrs. E. H. Stoll, Barbara Stoll; LEWIS, F. Berrv; OGDEN, Walter M. Rosene; ROCK RAPIDS, Mr. and Mrs. O. S. Thomas; SIGOURNEY, Mrs. W. C. DeLong; SIOUX CITY, Mrs. Mary L. Bailey, Jean Laffoon; SPIRIT LAKE, Dr. and Mrs. F. L. R. Roberts; SUMNER, Margaret Murley; TOLEDO, Mrs. M. L. Jones; WATERLOO, Lola Barnhart, Eleanor Eifert, Lucile Loban, Hilda Miller, Wanda Wilharm, Katherine Young; LINCOLN, NEBR., Mr. and Mrs. Elliott McClure; WASHINGTON, D. C., Mr. and Mrs. W. F. Kubichek. Total registered, 97.

Birds Seen on the Field Trip.—Atlantic and Council Bluffs localities, covered by various groups, May 11, 1941; 5:30 a. m. to 12 noon. Skies clear.

Eared and Pied-billed Grebes, Great Blue, Green and Black-crowned Night Herons, Am. Bittern, Mallard, Blue-winged Teal, Shoveller, Sharp-shinned, Eastern Red-tailed, Western Red-tailed, Rough-legged (no details—Ed.), and Sparrow Hawks, Osprey, Ring-necked Pheasant, Sora Rail, Am. Coot, Killdeer, Semi-palmated and Upland Plovers, Spotted, Solitary, Pectoral, White-rumped, Baird's and Least Sandpipers, Greater and Lesser Yellow-legs, Wilson's Phalarope, Forster's and Black Terns, Mourning Dove, Yellow-billed and Black-billed Cuckoos, Screech and Great Horned Owls, Nighthawk, Chimney Swift, Ruby-throated Hummingbird, Belted Kingfisher, Flicker, Red-bellied, Red-headed, Hairy, and Downy Woodpeckers, Yellow-bellied Sapsucker, Eastern and Arkansas Kingbirds, Phoebe, Wood Pewee, Crested, Least and Olive-sided Flycatchers, Prairie Horned Lark, Tree, Bank, Rough-winged, Barn and Cliff Swallows, Purple Martin, Blue Jay, Crow, Chickadee, Tufted Titmouse, White-breasted Nuthatch, House, Prairie Marsh and Short-billed Marsh Wrens, Catbird, Brown Thrasher, Robin, Wood, Olive-backed and Gray-cheeked Thrushes, Bluebird, Blue-gray Gnatcatcher, Migrant Shrike, Starling, Bell's, Yellow-throated, Blue-headed, Red-eyed and Warbling Vireos, Black and White, Tenn., Orange-crowned, Nashville, Yellow, Magnolia, Myrtle, Chestnut-sided and Black-poll Warblers, Oven-bird, Grinnell's and Louisiana Waterthrushes, Northern Yellow-throat, Am. Redstart, Bobolink, Eastern and Western Meadowlarks, Yellow-headed and Red-winged Blackbirds, Orchard and Baltimore Orioles, Bronzed Grackle, Cowbird, Scarlet Tanager, Cardinal, Rose-breasted Grosbeak, Indigo Bunting, Dickcissel, Goldfinch, Red-eyed Towhee, English, Savannah, Vesper, Lark, Chipping, Clay-colored, Field, Harris's, White-crowned, White-throated, Lincoln's and Song Sparrows. Total, 126 species.

GENERAL NOTES

Migration of Swainson's Hawks in Western Iowa.—At about four o'clock on the afternoon of October 5, 1940, a flock of Swainson's Hawks arrived on the Mrs. Ina Place farm and the Vaughn Amundson farm and went to roost in the extensive growths of large cottonwoods which are found on these Dickinson County farms. The Amundson farm is on the western margin of the natural timber along the Little Sioux River. I did not know of the visitation of this flock of hawks until October 16, when I learned that some of the birds had been shot and that one was hanging on a fence on the Mrs. Ina Place farm. I visited the farm and found the specimen impaled on a barbed wire fence. It was still in good condition and was definitely identified as a full grown but immature Swainson's Hawk. I learned from Vaughn Amundson that four of the birds had been thrown into a ravine southeast of his farmstead. Going there we found only one of them in shape for identification, with wings, tail and talons still connected. It was also definitely a Swainson's Hawk. Mr. Amundson's opinion is that all the hawks in the flock were of the same species. I asked him for a conservative estimate of the number of birds in the flock. He replied that there were at least 200, and quoted another observer, Roscoe Ewen, with an estimate of 300. It is said that so many of them perched on some of the cottonwood limbs they were bent down noticeably. Weather conditions at the time these hawks alighted in the trees portended a storm; about 1½ inches of rain fell during the night. The hawks were not seen the next morning. Migrant hawks are not common here in the fall, and local observers report that the number of hawks in this flock was most unusual.—NOEL J. WILLIAMS, Milford, Iowa.

Greater Prairie Chicken Crop Contents.—During the winter James R. Harlan, State Conservation Officer, Spirit Lake, sent us the contents of the crop of a Greater Prairie Chicken which he saw strike a single telephone wire about 4:00 p.m., February 27, 1941, in the southeast part of Dickinson County. Levi Mohler assisted with the analysis. Distinguishable among the contents were: 7 kernels of corn, 30 kernels of oats, 50 soy beans, 110 seeds of black bindweed, 54 seeds of lesser ragweed, a portion of a soy bean pod, 40 small portions of alfalfa leaves, 7 wild rose buds, 3 small wild rose leaves, and a portion of green grass leaf.—GEORGE O. HENDRICKSON, Ames, Iowa.

The Glaucous Gull is Taken in Iowa.—On March 25, 1941, I saw a Glaucous Gull (*Larus hyperboreus*) on the northeast shore of Lake Manawa in Lewis Township, Pottawattamie County, Iowa. On March 26 it was seen on the Nebraska side of the lake by Dr. R. Allyn Moser, Frederick W. Haecker and the writer. It was collected on March 27, 1941, at the spot where it was first seen, and it is now in the collection of study skins at Morningside College, Sioux City, Iowa. The bird proved to be a third-spring female with measurements as follow: wing extended, 61.50; wing, 17.70; length, 26.20; bill, 2.37; tail, 8.06; tarsis, 2.75. Measurements are given in inches and decimal fractions. The iris was yellow, with pupil black and eyelids yellow. The Glaucous Gull is not listed by either Anderson or DuMont so it may be considered as a new species for Iowa.—BRUCE F. STILES, Council Bluffs, Iowa.

The Laughing Gull in Pottawattamie County.—On March 25, 1941, I saw a Laughing Gull (*Larus atricilla*) at Lake Manawa, Lewis Township, Pottawattamie County, Iowa. The bird was not collected and consequently does not settle the question of whether or not the bird should be included in the Iowa list. Anderson listed it but DuMont thought his records had been confused with the first-year Franklin's Gull (*Larus pipiceus*) in which the primaries are black. The A.O.U. 'Check-List', lists it as casual in Iowa. The bird I saw had black primaries and was noticeably larger than either the Franklin's Gull or the Bonaparte's Gull (*Larus philadelphia*). It was in a flock of Ring-billed Gulls (*Larus delawarensis*) and appeared to be nearly the same size. I could also see that the black on the head extended farther down the ventral than the dorsal side. Most authorities agree that it never leaves salt water. It is likely that this sight record will not settle the question and we must await the time a specimen will be collected.—BRUCE F. STILES, Council Bluffs, Iowa.

Observations in the Amana Lake Region.—Twenty-two members of the Cedar Rapids Bird Club observed Iowa Bird Day, March 21, 1941, by going on a late afternoon field trip to the Amana Lake region. The lake was still covered with ice, but in small ponds near by Mallard, Pintail, Ring-necked and Wood Ducks were observed. The most unusual observation was that of a Phoebe perched on a fence above a snow bank. Other birds on the list included about 30 Double-crested Cormorants in flight, Red-tailed, Marsh and Sparrow Hawks, Ring-necked Pheasant, Killdeer, Downy Woodpecker, Prairie Horned Lark, Crow, Chickadee, White-breasted Nuthatch, Robin, Bluebird, Starling, English Sparrow, Eastern and Western Meadowlarks, Red-winged Blackbird, Bronzed Grackle and Cardinal.

On March 23, 1941, eight of us made our first record of the White-fronted Goose in this region. They circled, a flock of 12, over Amana Lake several times and finally stopped on the ice. In a short time they flew to an adjoining cornfield where they evidently fed, and then flew back to the lake to rest. There was one Canada Goose with them.—LILLIAN SERBOUSEK, Cedar Rapids, Iowa.

Fishing Habits of Herons.—In the March, 1941, issue of 'Iowa Bird Life' B. O. Wolden reports Great Blue Herons fishing by diving, and asks for similar reports. Forbush ('Birds of Massachusetts', Vol. I, pp. 327-8) says that this species "can alight on the water, swim and easily rise again and occasionally does so". He quotes five cases, in various parts of the United States, in two of which the birds were fishing. In the case of the common heron of Europe, a similar species, Tucker notes ('British Birds', Handbook of, Vol. III, p. 126) three or more cases of the bird swimming.

However, the habit is not recorded for other herons as far as I know. The Night Heron has been seen swimming in the Connecticut River near Hartford. During the summer of 1938 I noted Night Herons fishing in a shallow pond near Hobbs Brook Basin rookery in Waltham. The usual method of the older birds was to watch for fish from trees beside the pond, then glide out over the spot, and drop down, feet dangling and bill open, for the fish. More often than not they would fly up to the trees to eat. The pond was well stocked, and had few gently shelving edges, so that diving in was a highly practical idea. None that I saw became completely covered. It would be decidedly interesting to see whether the Iowa herons continued that way of fishing the following season; mine did not, since the water level became very low.—E. ALEXANDER BERGSTROM, Cambridge, Mass.

Nebraska Ornithologists Meet.—The Nebraska Ornithologists' Union held its annual convention at Hastings, Nebraska, May 9 and 10, 1941. The following officers were elected: President, Mrs. Wilson Tout; Vice-President, Dr. Allyn Moser; Corresponding Secretary, Earl W. Glandon; Secretary, Mrs. A. H. Jones; Treasurer, L. M. Gates; Editor-Curator, Myron H. Swenk. Due to the illness of Professor Swenk, Frederick W. Haecker was appointed to the position of Associate Editor, and he will edit the 'Nebraska Bird Review' for the present. On their field trip the Nebraska group had a list of 111 birds as compared with our Iowa list of 126. They have met regularly since 1896.

Many of the Nebraska people think it would help to weld the interests of midwestern bird students if we were to hold a joint meeting with them, as has been done on two occasions in the past. Of course, having met in southwestern Iowa this year, it would likely be better for our Iowa organization to meet in a more central location next year; but perhaps we might meet jointly in Omaha in 1943. Our meeting place would be in the beautiful Joslyn Memorial, a four-million-dollar structure of Georgia marble. This alone is well worth the trip to Omaha. Mr. Haecker and I have talked over the matter, and we are both anxious to have the joint meeting materialize.—BRUCE F. STILES, Council Bluffs, Iowa.

(Our neighboring states of Minnesota, Wisconsin, Illinois and Missouri also have active ornithological societies, and it might be well to give consideration to meeting with them at some future time.—Ed.)

The Cranbrook Institute of Science, Bloomfield Hills, Mich., has published a very attractive booklet entitled 'Bird Houses, Baths and Feeding Shelters: How to Make and Where to Place Them', written by Edmund J. Sawyer. It has 35 pages of useful information which will answer the many questions of those who wish to build houses for any one of a dozen or more species of birds. The author writes from long experience. His suggestions cover the subject thoroughly and are well worth following. Numerous sketches from his pen illustrate the booklet. Copies are available from the Institute for 20c each.

Dr. Warren N. Keck, of Coe College, Cedar Rapids, Iowa, has prepared a very useful booklet of 17 pages which is entitled 'Aids on

How to Organize a Bird Club'. It gives information on all angles of the subject—organization, topics for programs, club projects, when and where to take field trips, record-keeping, museum exhibits, and giving lists of bulletins, magazines and books which aid the bird student. Persons who are interested in organizing a local club will do well to obtain a copy of Dr. Keck's booklet and study his suggestions.

RECENT CONSERVATION BOOKS

Reviewed by GEORGE O. HENDRICKSON
Iowa State College, Ames, Iowa

Within the past two years three books dealing with the newer ideas in conservation of natural resources have appeared. The agreement among the authors in regard to desirable conservation practices shows that a unified program has been prepared and action has begun. The books are directed at three levels: Dr. Gabrielson's chiefly at the adult citizens of all professions, Mr. Elliott's chiefly at high school students, and the Cornell professors' chiefly at college students.

WILDLIFE CONSERVATION, by Ira N. Gabrielson. (Macmillan Co., New York City, 1941; cloth, pp. i-xv+1-250; plates 32, figures 24; price, \$3.50).

The author, reared on the farm in the lake region of northwest Iowa, received his college training in science at Morningside College and particularly at the hands of Professor T. C. Stephens. Thus well-grounded, he taught several years in the Marshalltown High School, continued his bird and conservation studies in Marshall and neighboring counties, and published his findings and views in the 'Proceedings' of the Iowa Academy of Science. Then he found employment with the U. S. Bureau of Biological Survey, and from the lowest ranks Dr. Gabrielson worked his way to the top as Chief of the U. S. Fish and Wildlife Service, Department of the Interior which combined the Bureau of Biological Survey and the Bureau of Fisheries. These remarks point out that the author is well-prepared with a background of a variety of successful experience as an agriculturist, teacher, and administrator in wildlife conservation.

The preface opens with "This book is not intended to give a complete analysis of all the complex factors that affect the conservation of wildlife. It is rather an effort to put into simple language the basic facts in this field and to emphasize that the various programs for the conservation of soil, water, forests and wildlife are so closely interwoven that each vitally affects one or more of the others. All are phases of a single problem—that concerned with the restoration and future wise use of our renewable natural resources." And the author holds to his aim. He uses simple language, a free and easy conversational style, and the reading is enjoyable to the end. Recent accomplishments and plans for the future are presented enthusiastically and sanely. The plates are reproductions of photographs to show conservation improvements of recent years, and the attractive figures graphically illustrate bird migration routes, animal ranges and major points of the writings.

The author defines conservation of the organic resources as "restoring to the highest possible level and maintaining in a state of high productivity those resources, including wildlife, that can be used on a crop basis to sustain human society." To that end soil-conservation practices such as restoration of stabilized vegetation on steep slopes, in gullies and on wind-eroding soils, contour farming, and the use of more soil-building legumes are explained briefly and strongly advocated. Coupled with soil-conservation, water must be stored near where the rain falls. The numerous pond, lake and marsh restorations

in North and South Dakota are cited, and the reviewer reminds you of Iowa's 25-year conservation plan, which outlines such a program for Iowa, and on which we are working steadily. The author realizes, and the reviewer concurs, that some dams and levees near mouths of rivers will be needed in flood control even after all possible water is stored at the heads, but the levels of the lakes thus created should be kept as nearly level as possible to aid resident as well as migratory wildlife. For the health of humans and desirable wildlife alike, pollution of streams and lakes must be lessened and come under control. Increase and protection of forest plantings will aid in soil and water conservation, build a permanent "bank account", and aid wildlife. A similar statement is made about grasslands. "Game farms do not solve the problem of providing a game supply adequate for public shooting", we are told. Rather, producing natural crops of game by protecting broodstock, improving environment to produce maximum crops, and limiting the take to the surplus available, bring better results. Game farms are spoken of as useful as a source of breeding birds to restock depleted areas. Ways and means for safe-guarding and restoring the migratory birds through refuge development and marsh restoration and reduction of annual kill to less than the yearly increase have demonstrated their soundness, and Dr. Gabrielson asks our long continued support in the waterfowl program which has worked with nature to practically double the waterfowl numbers in the past eight years. Non-game birds and mammals are protected better than ever. Frightening methods rather than killing are devised to drive such as blackbirds and horned larks from crops. Cultural methods are replacing poisoning and gassing methods for some rodent control as discussed in some detail. The annual fur crop, once valued at \$100,000,000 and now about one-half that, will be increased with the restoration of environment and a change in attitudes toward fur-bearers, many of which have been classified wrongly as vermin to be ruthlessly destroyed. Rather the fur-bearing predators are a resource from which a surplus crop may be harvested yearly. The statement "utilization of the game crop by man, therefore, may necessitate some reduction in numbers of predatory species, if a supply of game is to be maintained" should be read thoughtfully for "may" does not mean "must," and the author's foregoing analysis of predator relationships indicates that predator destruction will be lessened in light of much recent research.

Finally, the author tells us that "The conservation battle cannot be a short, sharp engagement, but must be grim, tenacious warfare—the sort that makes single gains and then consolidates these gains until renewed strength and a good opportunity make another advance possible." Dr. Gabrielson advocates an alert, intelligent conservation group in every community to challenge every project that will radically alter vegetative and water conditions in its section. Read his book and organize! Our national leader in wildlife conservation is in accord with Iowa's 25-year conservation plan on which we have operated some five years. Let us keep the major objectives in mind, and not get lost in minor details of operation. Good management of enriched soil, water stored at the heads of numerous small streams, increased plant cover, greater broodstocks of desirable wildlife, game and fur harvests limited to the biological surpluses, lessened predator control, restricted safe and sane pest control, and aesthetic and economic appreciation of all wildlife are major goals for the state and nation alike.

CONSERVATION OF AMERICAN RESOURCES, by Charles N. Elliott (Turner E. Smith and Co., Atlanta, Georgia, 1940; cloth, pp. i-xi+1-672; many unnumbered plates and figures; price \$1.80).

The author after some years of experience as a popular science and conservation writer is editor of the excellent magazine, 'Outdoor Georgia'. The book is profusely illustrated with plates from photo-

graphs of nature and conservation accomplishments, of men at work in conservation practices, and of leaders in conservation. Short personal messages from these leaders are included. Introductory stories told around attractive personalities introduce the various units and their subdivisions. Questions for recitation and special reports are frequently interspersed. The numerous agencies at work in conservation are discussed briefly, and their aims and accomplishments outlined clearly. The language is simple, and the style fast-moving, of a type appealing to youth and to youthful adults. Innumerable sources of reference material are furnished and a glossary of conservation is included.

CONSERVATION IN THE UNITED STATES, by A. F. Gustafson, H. Ries, C. H. Guise and W. J. Hamilton (Comstock Publishing Co., Inc., Ithaca, N. Y., 1939; cloth, pp. i-xi+1-445, figures 232; price, \$3.00).

The authors are members of the faculty, Cornell University, New York. The book deals with the conservation of natural resources, those exhaustible and those renewable. The history of conservation is discussed briefly in the Introduction. Part I deals with the conservation of the resources of land and water, Part II forest and associated range resources, public parks and monuments, Part III wildlife in its various phases, and Part IV mineral fuels, metals, and non-metallic minerals. The questions at the ends of the chapters, a long list of selections for supplementary reading and the rather formal, condensed treatment of the abundant factual material is more typical of a college text than of a high school text or a popular book, although the language is quite simple and the style free-flowing and clear. The figures are reproductions of photographs from nature, mines, conservation practices and factories, and of statistical graphs and tables and maps.

BIRD ISLANDS DOWN EAST, by Helen Gere Cruickshank (Macmillan Co., New York City, 1941; cloth, pp. i-xii+1-123, with 49 photographs; price, \$2.50).

This is the season when we bird students take vacations—in fancy, at least, if not in fact. Not many of us mid-westerners have opportunities to visit the state of Maine and to study the sea birds found there. With its varied topographical and scenic features and long coastline, Maine holds many attractions for summer vacationists. Next to an actual vacation in Maine, reading 'Bird Islands Down East' is a fair substitute. We recommend it highly for summer reading whether one goes on a vacation or not.

Mrs. Cruickshank is a very entertaining writer. Her descriptions of Maine scenes are full of color, her bird experiences are lively reading, and the bird-banding anecdotes are humorous as well as informative. The reader is carried along swiftly and is a participant in the exciting events that revolve around these Maine coast expeditions the objectives of which were invariably the photographing and banding of birds. We hear the wild cries of sea birds as they sweep the sky in wide circles. We hear the boom of the surf as it pounds the rocky shores of remote islands where the author and her husband have landed their boat. The fog blanket drops down and defers bird study in a way that is typical of Maine; later there is an inspiring sunset. These and many other scenes are vividly sketched in word pictures. Puffins, Leach's Petrels, Double-crested Cormorants, Black Guillemots, Great Blue Herons, Ospreys, Arctic Terns, Laughing Gulls and other species are studied intimately. The theme of bird conservation and the results obtained through protection of sea birds run through the volume. The National Audubon Society's nature camp on an island in Muscongus Bay is given a chapter. Allan D. Cruickshank, the author's husband, is a well-known bird photographer whose excellent photographic contribution adds greatly to the interest and value of the book.—F. J. P.